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Western Hills Viaduct Reconstruction / Replacement Project Bridges are an essential part of Cincinnati's transportation network, linking roadways and communities. Timely maintenance is critically important for the safety and welfare of the traveling public. The Department of Transportation and Engineering (DOTE) is the city agency primarily responsible for inspecting, maintaining, and improving the transportation system within the City of Cincinnati. The Bridge Program is the specific program within DOTE charged with the responsibility of maintaining the bridges within this transportation system. The ODOT Bridge Inspection Manual defines a bridge as "Any structure, including supports, of 10 feet or more clear span or 10 feet or more in diameter on, above, or below a highway."

In conformance with state law, every bridge in Cincinnati is inspected on an annual basis. Following the completion of each annual bridge inspection cycle, this report is issued by DOTE to inform City Council of the condition of the bridges in Cincinnati. This report also functions as an annual update to inform City Council on how the funds appropriated to the Bridge Program are being utilized.

Bridges that are part of the Interstate and State Highway Systems, including most City streets and rail lines over these routes, are inspected and maintained by ODOT. Consequently, DOTE Bridge Program personnel do not inspect these bridges and the inspection reports for these structures are not included in this report.

Excepting interstate highway bridges and bridges carrying state or federal routes which are inspected by the Ohio Department of Transportation (ODOT), DOTE

Bridge Program personnel annually inspect every bridge in Cincinnati that supports a public roadway or crosses over a public roadway. These inspections are performed in accordance with the guidelines specified in the ODOT Bridge Inspection Manual.

The objectives of these inspections are to:

- Provide a current information base on the condition of bridges within Cincinnati so that maintenance, repair, and replacement projects can be programmed efficiently.
- 2. Ensure that the structures continue to satisfy present service and safety requirements.
- 3. Determine the need for establishing or revisiting weight restrictions on bridges.
- 4. Determine and locate the extent of any structural weakness or damage so that appropriate corrective actions can be taken to ensure public safety.
- 5. Satisfy state and federal regulations.

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#### **2011 Bridge Inspection Cycle**

During the 2011 inspection season (which began in March of 2011 and was concluded in February of 2012), DOTE Bridge Program personnel inspected a total of 230 bridges. Based upon maintenance responsibility, these 230 bridges are divided into the following seven categories:

Bridges that are part of the Interstate and Stat Highway System, including most City streets and rail lines over these routes, are inspected and maintained by ODOT. Consequently, DOTE Bridge Program personnel do not inspect these bridges and the inspection reports for these structures are not included in this report.

- **1. City (DOTE) Bridges (65 bridges):** Vehicular and pedestrian bridges owned by the City and maintained by DOTE.
- **2. County Bridges (26 bridges):** Vehicular bridges within City limits that support improved roads which are of general and public utility running into or through Cincinnati. By contractual agreement with Hamilton County, DOTE maintains these bridges. Hamilton County funds the work performed on these bridges.
- **3. Ft. Washington Way Bridges (5 bridges):** Bridges over Ft. Washington Way constructed with the Ft. Washington Way reconstruction project. DOTE shares maintenance responsibility for these bridges with ODOT.
- **4. City (Skywalk) Bridges (20 bridges):** Central Business District pedestrian bridges on the skywalk system owned by the City. The Department of Public Services and property owners adjacent to the bridges maintain these structures. Generally, DOTE is responsible for the major rehabilitation of these bridges.
- **5. City (Other) Bridges (12 bridges):** Unique City owned structures located on, over, or under a roadway that technically qualify as bridges. Various City agencies including: Stormwater Management Utility and the Park Board maintain these bridges.
- **6. Railroad Bridges (51 bridges):** Railroad bridges that cross over or under public roadways. CSXT, RailAmerica, Norfolk-Southern, and SORTA own and maintain these bridges.
- **7. Private Bridges (51 bridges):** Mostly privately owned utility bridges that cross over public roadways. The applicable private owners maintain these bridges.

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Western Hills Viaduct Reconstruction / Replacement Project The goal of the Bridge Program is to preserve the structural integrity of all bridges that DOTE maintains so that they are safe. DOTE established the following performance measures to track progress towards accomplishing this objective.



1. Bridge Program personnel will annually inspect all bridges on, over, or under public streets within the City of Cincinnati (excluding bridges inspected by ODOT) and submit this annual bridge condition report, in compliance with the Ohio Revised Code, Section 723.54.

During the 2011 bridge inspection cycle, DOTE bridge inspection personnel inspected all 230 bridges requiring inspection. The results of those inspections are compiled in this report.

2. Bridge Program personnel will develop, request funding, program, and manage bridge maintenance, repair, and replacement work so as to maintain a Weighted Average Bridge Rating of 6 or better for bridges maintained by the Department of Transportation and Engineering. A bridge General Appraisal rating of 6 represents a "Satisfactory" condition. The Weighted Average Bridge Rating is explained in Appendix A.

As identified in this report, the present Weighted Average Bridge Rating for City (DOTE) bridges is 6.97.

3. Bridge Program personnel will develop, request funding, program, and manage bridge maintenance, repair, and replacement work so that no less than 95% of City (DOTE) bridges are open with no load restrictions.

As identified in this report, 98% of all City (DOTE) bridges are open with no load restrictions.

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#### **Bridge Conditions**

The individual bridge ratings for all 65 City (DOTE) bridges and all 26 County bridges are shown in tabular fashion **here.** 

A summary of the bridge ratings for all 230 inspected bridges is shown in tabular form **here.** 

The Weighted Average Bridge Rating for both City (DOTE) bridges and County bridges from 1987 to 2011 is shown in graphical form **here.** 



### **Change In Average Bridge Conditions Over The Past Year**

#### City (DOTE) Bridges

The change in the Weighted Average Bridge Rating for City (DOTE) Bridges that occurred over the past year (from 6.98 in 2010 to 6.97 in 2011) was the cumulative result of the following fifteen changes:

- The condition rating of the Celestial Street Pedestrian Bridge over Columbia Parkway was reduced from 8 (very good condition) to 7 (good condition).
- The condition rating of the Dreman Avenue Bridge over the West Fork Channel was reduced from 9 (excellent condition) to 8 (very good condition).
- Three Freedom Way bridges over parking garages were added to the inventory. All three bridges were inventoried with a condition rating of 8 (very good condition).
- The condition ratings of the Gest Street Ramps East and West of Linn Street were reduced from 7 (good condition) to 6 (satisfactory condition).
- The Gilbert Ave. Pedestrian Overhead was added to the City inventory due to a change in state inventory.
   This bridge came into the City inventory with a condition rating of 8 (very good condition).
- The condition rating of the Hutton Ave. Pedestrian Overhead was reduced from 7 (good condition) to 6 (satisfactory condition).

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- The Pedestrian Tunnel under former N&S East of Suspension Bridge was removed from the inventory as a result of the relocation of Mehring Way. The 2010 condition rating of the tunnel had been 7 (good condition).
- The condition rating of the abandoned Railroad Bridge over I-71 North of Elsinore was increased from 5 (fair condition) to 6 (satisfactory condition).
- The condition rating of the Second Street over Transit Center West Approach Bridge was reduced from 9 (excellent condition) to 8 (very good condition).
- The condition rating of the Sonoma Hill Culvert was reduced from 9 (excellent condition) to 8 (very good condition).
- The condition rating of the Stillwell Road Bridge over Amberly Creek was reduced from 7 (good condition) to 6 (satisfactory condition).
- The condition rating of the Walnut Street Bridge over Parking Garage was reduced from 9 (excellent condition) to 8 (very good condition).

### **County Bridges**

The change in the Weighted Average Bridge Rating for County Bridges that occurred this year (from 6.31 in 2010 to 6.26 in 2011) was the cumulative result of the following five changes:

- The condition rating of the Beekman Street Bridge over the West Fork Channel was reduced from 8 (very good condition) to 7 (good condition).
- The condition rating of the Center Hill Avenue
   Bridge over the Mill Creek was reduced from 5 (fair condition) to 4 (poor condition).
- The condition rating of the Madison Road Bridge over Duck Creek E. of Ridge Road was reduced from 8 (very good condition) to 7 (good condition).
- The condition rating of the North Bend Road Bridge over the Mill Creek was reduced from 9 (excellent condition) to 8 (very good condition).
- The condition rating of the Spring Grove Avenue Bridge over the Mill Creek South of Colerain was increased from 6 (satisfactory condition) to 7 (good condition).

# **Project Status of Bridges Rated in Poor or Worse Condition**

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Bridge Rating	City (D	OTE)	County		Ft. Washington Way	City Skywalk		City Othe	er	Railroad		Private		Total	
9 - Excellent	0	(4)	0	(1)	0 (0)	0	(1)	0	(0)	0	(0)	1	(2)	1	(8)
8 - Very Good	26	(20)	7	(8)	5 (5)	7	(6)	1	(0)	1	(1)	14 (	16)	61	(56)
7 - Good	22	(25)	8	(5)	0 (0)	10	(9)	7	(6)	6	(5)	12 (	13)	65	(63)
6 - Satisfactory	10	(5)	5	(6)	0 (0)	1	(2)	2	(2)	17 (	17)	13 (	10)	48	(42)
5 - Fair	6	(7)	2	(3)	0 (0)	2	(2)	1	(2)	6	(6)	7	(6)	24	(26)
4 - Poor	0	(0)	4	(3)	0 (0)	0	(0)	1	(1)	13 (	14)	4	(4)	22	(22)
3 - Serious	1	(1)	0	(0)	0 (0)	0	(0)	0	(0)	6	(7)	0	(0)	7	(8)
2 - Critical	0	(0)	0	(0)	0 (0)	0	(0)	0	(0)	1	(0)	0	(0)	1	(0)
1 - Imminent Failure	0	(0)	0	(0)	0 (0)	0	(0)	0	(0)	1	(1)	0	(0)	1	(1)
0 - Failed	0	(0)	0	(0)	0 (0)	0	(0)	0	(0)	0	(0)	0	(0)	0	(0)
Total	65	(62)	26	(26)	5 (5)	20 (	20)	12 (1	11)	51 (	51)	51 (	51)	230	(226)

Previous ratings in parentheses

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The only bridge rated in "Critical" condition (condition rating of 2) is the SORTA owned tunnel under McMillan Street. Major repairs have been made by SORTA since the date of the last inspection. The concerning condition at the north headwall has been removed and the condition rating for this structure is expected to be raised during the next inspection.

There are six bridges rated in "Serious" condition (condition rating of 3) that are owned and maintained by either CSXT, Norfolk-Southern Railroad, or RailAmerica. The conditions of these six bridges have been called to the attention of their owners.

The single City (DOTE) bridge rated in "Serious" condition is the Waldvogel (Sixth Street) Viaduct. The Viaduct has been posted at 16 tons (40% of the legal load limit) since 1993. Structural repairs costing \$674,000 were made to the Waldvogel Viaduct in late 2006 and early 2007 and additional repairs costing \$15,000 in 2011 to provide for continued safe use of the viaduct until it is replaced. DOTE, through a directed consultant, prepared plans to replace the Waldvogel Viaduct. Construction started during the summer of 2011 and the viaduct is scheduled to be removed during the summer of 2012. Additional information on the replacement project can be found in the Major Bridge Projects section of this website.

The four County bridges rated in "Poor" condition (condition rating of 4) are the Center Hill Ave. Bridge over the Mill Creek, the Kennedy Avenue Bridge over Conrail, the Marburg Avenue Bridge over Norfolk Southern Railroad, and the Western Hills Viaduct. State matching funding has been secured for the replacement of the Center Hill Avenue Bridge over the Mill Creek and plans are being developed by DOTE personnel. The project is expected to go to construction in 2012.

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State matching funding has been secured for the replacement of the Marburg Avenue Bridge and plans are being developed. Construction is expected to begin in 2016 when the matching funding becomes available. Rehabilitation plans for the Kennedy Avenue Bridge will be developed by DOTE personnel. Repair work is scheduled to begin in 2013. Planning has begun for either a major rehabilitation or the replacement of the Western Hills Viaduct. Additional information on the Western Hills Viaduct can be found here.

The remaining eighteen bridges that are rated in "Poor" condition are owned and maintained by either the railroads, other private owners or in the case of the Central Parkway Pedestrian Bridge at Music Hall, by Parking Facilities. The conditions of these bridges have been called to the attention of their respective owners. Repairs to the Central Parking Bridge at Music Hall are scheduled for Spring 2012.



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### **Weighted Average Bridge Rating**

The Weighted Average Bridge Rating is a calculated value used to monitor the performance and communicate the effectiveness of the Bridge Program. The Weighted Average Bridge Rating is an adjusted average of the overall bridge condition ratings that accounts for the importance of the bridge as determined by its size. The weighted average is calculated using a size factor multiplier based on the deck area of the bridge as follows:

Size Factor Multiplier	Deck Area [ft <sup>2</sup> ]					
1	Under 5,000					
2	5,000 to 10,000					
3	10,001 to 20,000					
4	20,001 to 40,000					
5	Over 40,000					

By using the size factor, a bridge with a deck area of over 40,000 square feet will have five times the effect on the weighted average than a bridge with a deck area of under 5,000 square feet. Therefore, the Weighted Average Bridge Rating will be affected more by larger bridges which are typically more vital to the public and require more funds for maintenance, repair, and replacement.



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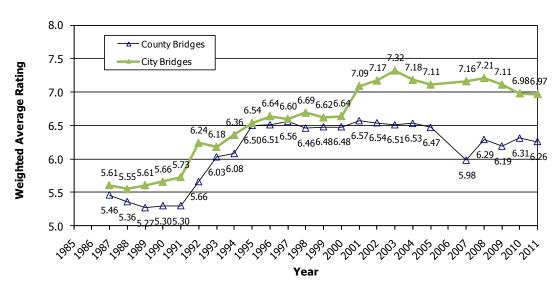
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Western Hills Viaduct Reconstruction / Replacement Project The Weighted Average Bridge Rating was developed as a compromise between using no size factor (where the condition rating of single pedestrian bridge would effect the average bridge rating as much as the condition rating of a much larger bridge, like the Waldvogel Viaduct) and using a square foot size factor (where the condition rating of the larger viaducts would completely dominate the average bridge rating). Over the last 20 years, DOTE has used the Weighted Average Bridge Rating as an effective tool to prioritize and schedule repairs to all bridges regardless of their size.

### **Weighted Average Bridge Ratings**



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		Structural	Deck Area	Year	2010 Inspection	2011 Inspection
	Bridge Name	File Number	(sq. ft.)	Built	Rating	Rating
1	Beekman Street Pedestrian Bridge over Elmore	3160068	1,035	1970	7	7
2	Bramble Avenue Bridge over Little Duck Creek	3160556	2,565	1931	8	8
3	Burns Street Ramp over RR West of Eighth Street Viaduct	3160270	3,321	2009	8	8
4	Celestial Street Pedestrian Bridge over Columbia Parkway	3103455	1,320	1938	8	7
5	Central Incinerator Approach Bridge over the Mill Creek	3160610	9,019	1953	7	7
6	Central Parkway over Rapid Transit Tubes South of Hopple	3199924	18,711	1924	6	6
7	Central Parkway over Rapid Transit Tubes - Walnut to Draper	3199937	422,280	1922	5	5
8	Central Parkway Pedestrian Overhead North of Clifton Hills	3111342	1,806	1958	6	6
9	Coliseum Pedestrian Bridge from Taylor Southgate Bridge	3199928	1,000	1995	8	8
10	Coliseum Pedestrian Bridge over Taylor Southgate Bridge	3101355	11,300	1975	7	7
11	Coliseum/Stadium Plaza Overhead over Broadway (Platform A)	3101940	38,525	1975	7	7
12	Dalton Avenue under C.U.T. Approach Drive	3160017	25,248	1931	7	7
13	Dana Avenue Pedestrian Bridge North of Madison	3161455	3,468	1973	7	7
14	Dreman Avenue Bridge over West Fork Channel	3160432	3,693	1999	9	8
15	Elm Street Cable Stayed Pedestrian over FWW - East Side	3106179	2,845	2000	8	8
16	Elm Street Cable Stayed Pedestrian over FWW - West Side	3106063	2,845	2000	8	8
17	Elm Street over Pete Rose Way and Parking Lots	3161978	36,960	2000	8	8
18	Elmhurst Avenue Pedestrian Bridge over Torrence Parkway	3162494	1,155	1950	5	5
19	Erie Avenue Bridge over Duck Creek	3160882	4,136	1900	7	7
20	Erie Avenue Bridge over N & W Railroad	3160602	1,955	2001	7	7
21	Erie Avenue Bridge over Red Bank Road	3160998	12,800	1943	7	7
22	Erie Avenue Bridge over SORTA	3160939	12,800	1943	7	7
23	Este Avenue Extension Culvert	3161412	2,250	1990	8	8
24	Freedom Way West over Parking Garage between Elm and Race	3165280	22,922	2011	-	8
25	Freedom Way Center between Race and Rosa Parks Street	3165337	34,604	2011		8
26	Freedom Way East between Walnut and Main Streets	3165396	34,869	2011		8
27	Gest Street Bridge over CIND Railroad	3161277	2,195	1919	7	7
28	Gest Street Bridge over the Mill Creek	3161749	4,373	1997	8	8
29	Gest Street Ramp East of Linn Street	3161358	3,049	1963	7	6
30	Gest Street Ramp West of Linn Street	3161366	3,049	1963	7	6
31	Gilbert Ave. Pedestrian Overhead S of Court Street	3100774	807	1970		8
32	Hutton Avenue Pedestrian Bridge over Conrail	3199920	1,150	1930	7	6
33	Ida Street Viaduct over Wareham	3160076	14,356	1931	6	6
34	Kenton Street over Florence Ave	3160130	13,275	1998	8	8
35	Lincoln Avenue Bridge over Open Land	3161838	16,500	1953	7	7
36	Madison Road Pedestrian Overhead East of CSX	3161935	773	1959	5	5
37	Madison Road Pedestrian Overhead West of CSX	3161889	774	1959	5	5
38	Main Street Cable Stayed Pedestrian Bridge over FWW - East Side	3106462	2,845	2000	8	8
39	Main Street Cable Stayed Pedestrian Bridge over FWW - West Side	3106403	2,845	2000	8	8
40	Main Street Bridge over Parking Garage	3161900	27,730	2004	8	8
41	Mehring Way Pedestrian Overhead Bridge to Coliseum	3199927	13,262	1975	7	7
42	Mitchell Avenue over the Mill Creek	3160440	14,347	1959	6	6
43	Monestary Street Bridge over Open Land	3161404	11,324	1984	6	6
44	Park Avenue Bridge over Kemper Lane	3160777	30,680	1917	7	7

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		212222		1070		
45	Pedestrian Tunnel Under Norfolk Southern East of Suspension Bridge	3199923		1970	7	
46	Powers Street Bridge over West Fork Channel	3160904	4,799	2001	8	8
47	Race Street over Pete Rose Way and Parking Lots	3162036	20,724	2000	8	8
48	Railroad (Abandoned) over I-71 North of Elsinore	3106748	5,440	1970	5	6
49	Roe Street Bridge over Little Duck Creek	3161005	1,692	1930	7	7
50	Rosslyn Drive Bridge over Duck Creek	3162338	2,820	1943	7	7
51	Second Street Connector from Clay Wade Bailey (Ramp D)	3160661	25,617	2001	8	8
52	Second Street over Transit Center - East End	3160866	61,812	2001	5	5
53	Second Street over Transit Center - Elm to Main Streets	3160696	178,641	2001	8	8
54	Second Street over Transit Center - West Approach	3160688	27,302	2001	9	8
55	Settle Avenue Bridge over Little Duck Creek	3161188	1,888	1996	8	7
56	Sixth Street Expressway Pedestrian Bridge West of Harriet	3102831	1,251	1965	7	7
57	Sonoma Court Culvert	3162753	1,474	2004	9	8
58	Southside Avenue Bridge over Conrail/CSX	3161528	5,263	1992	8	8
59	Springlawn Avenue Bridge over Branch of Ludlow Run	3161285	434	1925	5	5
60	Stillwell Road Bridge over Amberley Creek North of Summit	3161331	840	1954	7	6
61	Victory Parkway Pedestrian Overhead East of I-71	3161374	2,090	1972	7	7
62	Vine Street Bridge over Parking Garage	3161781	22,214	2003	8	8
63	Waldvogel Viaduct	3102785	139,068	1951	3	3
64	Walnut Street Bridge over Parking Garage	3162877	22,185	2004	9	8
65	West Eighth Street Bridge over Fairbanks	3162702	8,568	1955	7	7
66	West Eighth Street Bridge over Woodlawn	3162656	4,704	1955	7	7
	Weighted Average Bridge Rating =	Total SF	1,415,592		6.98	6.97
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		Structural File Number	Deck Area (sq. ft.)	Year Built	2010 Inspection Rating	2011 Inspection Rating
1	Anthony Wayne Avenue Bridge over the Mill Creek	3136388	6,452	1992	8	8
2	Beekman Street Bridge over West Fork Channel	3136426	3,256	1912	8	7
3	Berkshire Lane Culvert 400 Feet North of Beechmont	3136450	1,767	1986	7	7
4	Center Hill Avenue Bridge over the Mill Creek	3136442	5,775	1929	5	4
5	Clifton Avenue Bridge over the Mill Creek	3136353	8,729	1935	8	8
6	East Fork Avenue Bridge over Little Duck Creek	3136574	1,512	1952	5	5
7	Eighth Street Bridge over Railroads West of Eighth Street Viaduct	3136639	7,110	2008	8	8
8	Eighth Street Viaduct over the Mill Creek, Evans and Railroad	3136582	190,610	1929	6	6
9	Galbraith Road Bridge over Anthony Wayne Avenue	3136612	20,808	1949	6	6
10	Hopple Street Viaduct	3136337	115,560	1916	6	6
11	Kennedy Avenue Bridge over Conrail	3136671	9,723	1933	4	4
12	Madison Road Bridge over Duck Creek East of Ridge	3136728	2,352	1929	8	7
13	Marburg Avenue over Norfolk Southern Railroad	3136744	6,156	1932	4	4
14	North Bend Road over Kirby Road	3136795	6,776	1951	5	5
15	North Bend Road over the Mill Creek	3137139	8,404	1995	9	8
16	Plainville Road Arch over Little Duck Creek	3136817	1,188	1915	6	6
17	Red Bank Expressway Culvert over Deerfield Channel	3136841	3,570	1969	6	6
18	Red Bank Expressway Culvert over Deerfield Channel at Madison	3136868	28,000	1970	7	7
19	Seymour Avenue Bridge over the Mill Creek	3136922	8,326	1994	8	8
20	Spring Grove Avenue Bridge over Mill Creek East of Kings Run	3137074	13,448	1993	7	7
21	Spring Grove Avenue Bridge over Mill Creek South of Colerain	3137031	17,365	1970	6	7
22	West Fork Road Bridge over Tributary of West Fork Channel	3137155	2,755	2000	8	8
23	West Fork Road Bridge over West Fork Channel - 2nd West of Montana	3137147	3,143	2000	8	8
24	West Fork Road Bridge over West Fork Channel at Montana	3137090	3,476	1928	7	7
25	Western Hills Viaduct	3137082	221,920	1931	4	4
26	Wooster Road Bridge over Duck Creek	3137112	5,816	1961	7	7
		Total SF	703,997			
	Numbers in bold indicate a change in rating since last inspection	Average W	eighted Bridg	e Rating =	6.31	6.26

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# City Department of Transportation and Engineering (DOTE) Bridges

Maintenance, repair, and replacement of City (DOTE) bridges is funded with both operating and capital funds. City funds are leveraged, when possible, with state and federal funds.

DOTE's goals are to maintain a weighted average bridge rating of 6, "Satisfactory" condition, or better and to have at least 95% of City (DOTE) bridges open without load restrictions. The Smale Infrastructure Commission Report recommended an annual investment increase of \$2,000,000 to maintain the city's bridge infrastructure. This recommendation was in 1988 dollars to maintain a deck area of approximately 1,000,000 square feet. Today, DOTE maintains over 1,400,000 square feet of bridge deck area. Funding for City (DOTE) bridges in 2012 is \$1,462,000. At this current funding level, a general decline in the condition of City (DOTE) bridges is expected unless those funds can continue to be significantly leveraged with other outside funding sources.

### **County Bridges**

By contractual agreement with Hamilton County, the City of Cincinnati receives \$1,000,000 annually to inspect and maintain bridges that support improved roads which are of general and public utility running into or through Cincinnati. This funding level has remained constant since the initiation of the agreement in the late 1970's. At this current funding level, a general decline in the condition of County bridges is expected, unless those funds can continue to be significantly leveraged with other outside

funding sources. As with City funds, Hamilton County funds are leveraged, when possible, with state and federal funds.

### **Leveraged Funding**

DOTE continues to aggressively pursue outside funding sources to maintain Cincinnati's public infrastructure. Successful leveraging of outside funds is imperative to maintaining and improving the condition of Cincinnati's bridges.

The following tables indicate the amount of outside funding that the City has obtained in recent years for the Bridge Program. A significant percentage of the obtained leveraged funding was for County bridges. Because of the generally higher traffic volumes on these bridges, the funds received from Hamilton County are more likely to be successfully leveraged with outside funding sources.

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### 1993 – Present Leveraged Funding Summary – City (DOTE) Bridge Program

	_	Contract Bid	%	%	1			
Year		Cost	Federal	State	% SCIP	% Local	Leveraged	Local
1993	Sixth Street Expressway (2 bridges)	\$1,555,990	75%	25%			\$1,555,990	\$0
1996	Gest Street over the Mill Creek	\$839,550			80%	20%	\$671,640	\$167,910
1997	Kenton Street over Florence	\$1,589,170			80%	20%	\$1,271,336	\$317,834
1998	Dreman Ave. Bridge over West Fork Channel	\$1,887,370			70%	30%	\$1,321,159	\$566,211
1998	Gest Street over CIND Railroad	\$552,000			55%	45%	\$303,600	\$248,400
2000	Erie Avenue Bridge over N & W Railroad	\$731,620			68%	32%	\$498,968	\$232,652
2003	Martin Drive Ramp over Columbia Parkway (Bridge Work Only)	\$162,333		100%		0%	\$162,333	\$0
2003	Celestial Street Pedestrian Bridge (Bridge Work Only)	\$172,727		57%		43%	\$98,477	\$74,250
2003	Columbia Parkway Bridge Project	\$2,201,695		81%		19%	\$1,781,337	\$420,358
2006	6 <sup>th</sup> Street Expressway Project	\$103,702		100%		0%	\$103,702	\$0
2007	Waldvogel Real Estate Purchase of Hilltop Property	\$5,000,000	84%			16%	\$4,196,786	\$803,214
2008	Burns Street Ramp – Replacement	\$1,205,224			17%	83%	\$204,888	\$1,000,336
2010	Waldvogel Railroad Relocation (Const. Contract)	\$6,012,000	84%			16%	\$5,035,000	\$977,400
2010	Waldvogel Real Estate Purchases	\$2,974,387		80%		20%	\$2,379,510	\$594,877
2011	Waldvogel Real Estate Purchases	\$1,419,698		80%		20%	\$1,135,758	\$283,940
2011	Waldvogel Reconstruction (Const. Contract)	\$37,509,074	79%		12%	9%	\$31,190,057	\$3,317,018
	Total Costs	\$63,916,540					\$51,910,541	\$9,004,400

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### 1993 - Present Leveraged Funding Summary - County Bridge Program

	Period	Contract Bid	%	%	0/ 6610	0/ 1 1	1	Lasal
1993	Project Columbia Parkway (2 bridges)	Cost \$1,497,545	Federal 70%	State 30%	% SCIP	% Local	Leveraged \$1,497,545	Local \$0
	, ( 3 ,	. , ,					' ' '	
1993	River Road over Muddy Creek	\$759,740		25%			\$759,740	\$0
1993	Sixth Street Expressway (10 bridges)	\$4,130,761	75%	25%	000/	2001	\$4,130,761	\$0
1993	Spring Grove over Mill Creek	\$2,065,260			80%	20%	\$1,652,208	\$413,052
1994	Seymour Avenue over Mill Creek	\$1,945,780			20%		\$1,945,780	\$0
1994	Beechmont Avenue Viaduct	\$5,067,402	75%	25%			\$5,067,402	\$0
1995	Beekman Avenue over West Fork	\$967,222			80%	20%	\$773,778	\$193,444
1995	North Bend Road over Mill Creek	\$1,302,647	80%		20%		\$1,302,647	\$0
1993	Ludlow Avenue Viaduct	\$9,229,975	75%	25%			\$9,229,975	\$0
1997	Columbia Parkway Viaduct	\$10,900,000		100%			\$10,900,000	\$0
1999	Fort Washington Way Viaduct (3rd St. Viaduct)	\$27,208,420		100%			\$27,208,420	\$0
1999	West Fork Bridges over West Fork Channel	\$1,555,310			70%	30%	\$1,088,717	\$466,593
1999	River Road/Hillside Culvert at Bender	\$2,198,465		100%			\$2,198,465	\$0
2001	Kellogg and Salem Avenue Bridges	\$397,097		100%			\$397,097	\$0
2002	Western Hills Viaduct - West Plaza Repairs	\$161,296			90%	10%	\$145,166	\$16,130
2003	Columbia Parkway Bridge West of Martin Drive Ramp (Bridge Work Only)	\$3,599,019		100%			\$3,599,019	\$0
2004	Clay Wade Bailey Approach	\$1,400,000		100%			\$1,400,000	\$0
2005	Norwood Lateral over Paddock and Reading Road Bridges	\$396,755		100%			\$396,755	\$0
2006	6th Street Expressway Project (10 Bridges)	\$631,560		100%			\$631,560	\$0
2007	Columbia Parkway over Beechmont, Linwood, Heekin & Ramp to Eastern – Deck Treatments (Bridge Work Only)	\$73,830		100%			\$73,830	\$0
2008	8 <sup>th</sup> Street Viaduct and 8 <sup>th</sup> Street Bridge West of 8 <sup>th</sup> Street Viaduct	\$20,593,768	63%		17%	20%	\$16,475,014	\$4,118,754
2009	Clifton Avenue Bridge Superstructure Replacement	\$1,535,000			70%	30%	\$1,074,500	\$460,500
2010	Western Hills Viaduct – Upper Deck Rehabilitation	\$1,836,273			50%	50%	\$918,136	\$918,136
	Total Costs	\$99,453,125					\$92,866,515	\$6,586,609

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### 2011–2012 City (DOTE) Bridge Projects

Central Parkway over Rapid Transit Tubes, Walnut to Draper – Concrete Repairs

(City Bridge in the CBD, Over the Rhine, the West End, CUF and Camp Washington)

This project consisted of the replacement of five expansion joints with the rapid transit tubes and other miscellaneous repairs. A contract of \$1,808,993 was funded primarily with Water Works funds as the tubes house and provide protection for an existing water main. Construction was completed in 2011.

# Waldvogel Viaduct Fracture Critical Inspection and Analysis

(City Bridge in Lower Price Hill)

This project consisted of performing a "hands on" inspection of every fracture critical member of the Viaduct not over River Road. (ODOT performed a fracture critical inspection for those portions of the Viaduct over River Road in autumn of 2009). The inspection within arm's length distance was carried out by a directed consultant in 2010. As a result of the inspection, the City let a contract for repairs at two hinge locations in January 2011. The cost of these hinge repairs was \$14,586 and was funded with City CIP bridge funds.

# Central Riverfront - Freedom Way Construction (City Bridges in CBD)

This project consisted of building Freedom Way as three bridges elevated over new and proposed parking garages between Main and Walnut streets and between Rosa Parks and Elm Streets. The structures have a combined deck area of approximately 93,000 square feet. Plans were developed by directed consultants. These structures were constructed and financed as part of the Banks project and were completed in 2011.

### Central Riverfront – Race Street Bridge Over Pete Rose Way Reconstruction

(City Bridge in CBD)

This project consists of modifying the existing bridge to incorporate Freedom Way and new parking garages between Ted Berry Way and Second Street. Plans were developed by directed consultants. This work was financed as part of the Banks project and was completed in 2011.

### Second Street over Transit Center – Leak Mitigation

(City Bridge in Central Riverfront District)

This project consists of improvements to the Transit

Center which will mitigate current leakage issues. The project is being implemented as a preservation measure of the structure and the appurtenances within. Plans for the work were prepared by a directed consultant. The first phase of the work is under construction and will be complete in 2012. The second phase will begin in 2013. This work is being financed as part of the banks project.

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### 2011–2012 City (DOTE) Bridge Projects continued

Gilbert Ave Pedestrian Overhead – Railing Repairs (City Bridge in CBD)

This project consists of repairs to portions of the existing bridge railing. Emergency repairs were performed by City maintenance crews following an oversized load accident. A contract of \$37,250 has been awarded and work is expected to start in the first quarter of 2012. Reimbursement from the motorist's insurance company will be pursued on this project.

# Race Street, Vine Street and Walnut Street Bridges over Fort Washington Way - Waterproofing

(City Bridges in the Central Business District)

This project consists waterproofing the existing planters on the bridges and making improvements to the existing drainage and irrigation systems within the planters. Construction is expected to occur in the second quarter of 2012. This project will be funded with City CIP bridge funds.

# Vine Street and Walnut Street Bridges over Fort Washington Way – Approach Slab Adjustment

(City Bridges in the Central Business District)

This project consists of adjusting the elevations of the approach slabs on the Third Street end of the bridges to eliminate the impact to vehicles resulting from previous settlement. This project is funded with City CIP bridge funds.

### Southside Avenue Bridge – Railing Repair

(City Bridge in Sedamsville)

This project consists of repairing impact damage to portions of the bridge railing. The project is expected to be bid in the first quarter of 2012. Reimbursement from the motorist's insurance company will be pursued on this project.

# Ida Street Viaduct over Wareham – Concrete Repairs (City Bridge in Mt. Adams)

This project consists of performing extensive concrete repairs to the reinforced concrete arches and deck of the superstructure and replacing the existing deteriorated concrete railing. The project is expected to bid in 2012. The project will be funded with City CIP bridge funds and is expected to be approximately \$1,400,000.





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### **2011–2012 County Bridge Projects**

### **Western Hills Viaduct Fracture Critical Inspection**

(County Bridge in CUF and South Fairmont)

This project consists of performing a "hands on" inspection of every fracture critical member on the Western Hills Viaduct as well as inspecting selected fatigue-prone members within arm's length distance. The inspection was performed by a directed consultant in 2011. The cost of \$76,700 for this inspection was funded with County MRF bridge funds.

### Center Hill Bridge over the Mill Creek

### - Bridge Replacement Contract

(County Bridge in Winton Hills)

This project consists of replacing the existing bridge. This project is scheduled to be bid in the summer of 2012. The project will be funded with County MRF bridge funds and State OPWC funds and is expected to be approximately \$1,500,000. Construction is scheduled to begin in 2012.

#### 2011 / 2012 State / City Bridge Projects

**Evanston Ave. Ped. Bridge over I-75 – Rehabilitation** (State Bridge in Evanston)

This project consists of constructing ADA compliant ramps, painting structural steel, upgrading fencing and railings and raising the superstructure. Plans were prepared by a consultant hired and paid by ODOT. This is an ODOT lead project in which the City is participating in order to incorporate more attractive design elements. The project is scheduled to be bid in 2012.





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### **Waldvogel Memorial Viaduct Replacement**

(City Bridge in Lower Price Hill)

Construction for the replacement of the Waldvogel Memorial (Sixth Street) Viaduct started in the summer of 2011 and is expected to be substantially complete by the end of 2013. The project will remove the existing, deteriorated, half-mile long viaduct and replace it with a combination of widened roadway on grade and four new, smaller, ramp bridges connecting River Road to Warsaw and Elberon Avenues. The project was bid by ODOT and ODOT is managing the construction of the project. For construction purposes, ODOT combined the Waldvogel Viaduct project with a second project which will make improvements to the Sixth Street Expressway from the east terminus of the Waldvogel project (the Mill Creek) east to I-75. The Sixth Street Expressway improvement project is expected to be substantially complete by the end of 2014. For maintenance of traffic purposes, the existing viaduct is scheduled to remain in operation until summer, 2012 at which time it will be removed when a new bridge connecting River Road to Elberon Avenue is complete. The \$37,000,000 contract construction cost for the Waldvogel Viaduct replacement project is being funded with a combination of Federal Discretionary, Local Major Bridge, and OKI- STP funds, State OPWC funds, Hamilton Count MRF funds, and City CIP funds.

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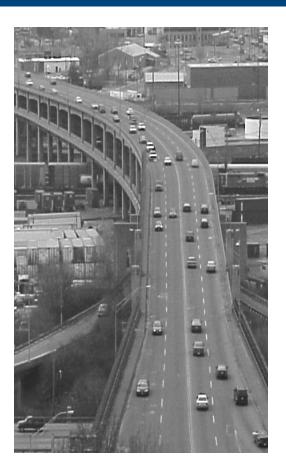
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### Western Hills Viaduct Rehab / Replacement

(County Bridge in South Fairmount and CUF)

Representatives from DOTE and the Hamilton County Engineers Office have selected and hired URS to perform preliminary engineering and prepare environmental documents for either the substantial rehabilitation or replacement of the Western Hills Viaduct. Hamilton County Bridge funds are being used to fund this preliminary engineering work. All work is being coordinated with ODOT's proposed Brent Spence project and MSD's proposed Lick Run storm water separation project. Due to the size and complexity of the Western Hills viaduct, it is expected that its replacement would cost approximately \$200,000,000. Because of this high cost, substantial Federal funding for the project will be needed. Because the Western Hills Viaduct is at the northern end of ODOT's proposed Brent Spence project, it would be beneficial for the construction of the two projects to be coordinated within the same contract. Presently, neither project has funding secured for construction. Updates regarding the Western Hills Viaduct reconstruction / replacement project can be found at:

http://www.cincinnati-oh.gov/westernhillsviaduct/

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		Program	Expense	s						
Carry-Over	New					FUND	SPLIT <sup>1</sup>		Estimated	
Local Funds	Local Funds	PROJECTS BY YEAR CONTRACT AWARDED	Rating	BR. AREA (SQ. FEET)	ESTM. TOTAL LOCAL PROJ. COST	% LOCAL FUNDS	% MATCH FUNDS	Outside Funding Secured	Remaining Funds	
2012										
\$2,400,000		Bridge Inspection & Program Management	N/A		\$200,000	100%	0%	N/A		
	\$62,000 O	TROD Capital Bridge Work	Various	Various	\$50,000	100%	0%	N/A		
		Ida Street Bridge-Concrete Overlay and Concrete Repairs	6	30,680	\$1,400,000	100%	0%	N/A		
		City Bridge Maintenance Contract	Various	Various	\$250,000	100%	0%	N/A		
		Race, Vine and Walnut Streets over FWW - Waterproofing	Various	Various	\$250,000	100% 100%	0% 0%	N/A		
		Vine, Walnut approach slab adjustment	Various 8	Various 807	\$200,000	100%	0%	N/A		
		Gilbert Ave. Railing Repair		5,263	\$75,000 \$75,000	100%	0%	2		
		Southside Ave Bridge - Railing Repair	8	5,203		100%	0%			
		TOTAL			\$2,425,000				\$1,437,000	
2013										
\$1,437,000	\$1,200,000 C	Bridge Inspection & Program Management	N/A		\$200,000	100%	0%	N/A		
	\$100,000 O	TROD Capital Bridge Work	Various	Various	\$50,000	100%	0%	N/A		
		Stillwell Rd. Bridge over Amberly Creek - Replacement	7	840	\$850,000	100%	0%	N/A		
		Baymiller Pedestrian Bridge - Overlook Removal	N/A		\$200,000	100%	0%	N/A		
		Elmhurst Pedestrian Bridge - Replacement	5	1,155	\$600,000	100%	0%	N/A		
		TOTAL			\$1,900,000				\$837,000	
2014 \$837,000	\$1,200,000 C	Bridge Inspection & Program Management	N/A		\$200,000	100%	0%	N/A		
\$657,000	\$1,200,000 C	TROD Capital Bridge Work	Various	Various	\$50,000	100%	0%	N/A		
	\$100,000 0	Springlawn Ave. Bridge Replacement	5	434	\$600,000	100%	0%	N/A		
		TOTAL		434	\$850,000	100%	076	IN/A	64 007 000	
		IOTAL			\$650,000				\$1,287,000	
2015										
\$1,287,000	\$1,500,000 C	Bridge Inspection & Program Management	N/A		\$200,000	100%	0%	N/A		
\$1,207,000	\$100,000 O	TROD Capital Bridge Work	Various	Various	\$50,000	100%	0%	N/A		
	\$100,000	Central Incinerator Bridge - Deck Replacement	7	13,192	\$650,000	100%	0%	N/A		
		City Bridge Maintenance Contract	Various	Various	\$250,000	100%	0%	N/A		
		TOTAL	various	various	\$1,150,000		0 /0	19/7	\$1,737,000	
		TOTAL			ψ1,130,000				\$1,737,000	
2016										
\$1,737,000	\$1,500,000 C	Bridge Inspection & Program Management	N/A		\$200,000	100%	0%	N/A		
		TROD Capital Bridge Work	Various	Various	\$50,000	100%	0%	N/A		
		Park Avenue Bridge - Concrete Overlay & Concrete Repair	7	30,680	\$1,600,000	100%	0%	N/A		
		City Bridge Maintenance Contract	Various	Various	\$250,000	100%	0%	N/A		
		TOTAL			\$2,100,000				\$1,237,000	
2017										
\$1,237,000	\$1,500,000 C	Bridge Inspection & Program Management	N/A	[]	\$200,000	100%	0%	N/A		
	\$100,000 O	TROD Capital Bridge Work	Various	Various	\$50,000	100%	0%	N/A		
		Monestary Street Bridge - Concrete Overlay	6	11,324	\$500,000	100%	0%	N/A		
		Rosslyn Drive Bridge - Deck Replacement	7	2,820	\$500,000	100%	0%	N/A		
		City Bridge Maintenance Contract	Various	Various	\$300,000	100%	0%	N/A		
		TOTAL	1		\$1,550,000				\$1,287,000	

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<sup>2</sup> The City has the accident reports and insurance information of the haulers involved in the accidents and will pursue reimbursement from them to recoup the project costs.





The projects are grouped by the year of expected bid. This plan is flexible and will be revised as necessary if future bridge inspections reveal unexpected changes in the condition of any bridge, if anticipated bridge funding amounts change, if unexpected leveraged funding sources become available or are withdrawn, if the timing of any bridge project requires adjustment to coordinate with other infrastructure improvement or development projects, or if City Council or the City Administration redirect priorities. The estimated project costs are preliminary and are only intended to establish basic funding needs and are not considered engineer's estimates. Bridge conditions will be continually monitored during the six-year period and the plan will be adjusted as needed to best maintain the bridge infrastructure.

The funds programmed for the City Bridge Maintenance Contracts may also be used, wholly or in part, to support other projects listed in the six-year plan whose expenses exceed the preliminary estimations listed in the six-year plan.

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		Program	Expen	ses					
Carry-Over	New					FUND	O SPLIT 1	Estimated	
Local Funds	Local Funds PROJECTS	PROJECTS BY YEAR CONTRACT AWARDED	Rating	BR. AREA (SQ. FEET)	ESTM. TOTAL LOCAL PROJ. COST	% LOCAL FUNDS	% MATCH FUNDS	Outside Funding Secured	Remaining Funds
2012									
\$4,900,000	\$1,000,000	Bridge Inspection & Program Management	N/A		\$100,000	100%	0%	N/A	***************************************
		Underwater Inspections	Various	Various	\$50,000	100%	0%	N/A	
		TROD and Contract Maintenance Work	Various	Various	\$100,000	100%	0%	N/A	
		Centerhill Bridge Replacement	5	6,452	\$1,500,000	50%	50%	Yes	
		TOTAL			\$1,750,000				\$4,150,000
			·						
2013					***************************************				
\$4,150,000	\$1,000,000	Bridge Inspection & Program Management	N/A		\$100,000	100%	0%	N/A	
		TROD and Contract Maintenance Work	Various	Various	\$100,000	100%	0%	N/A	
		Western Hills Viaduct - Rehab/Replacement - Detail Design <sup>2</sup>	4	221,920	\$650,000	20%	80%	No	
		Western Hills Viaduct - Utility Trough Repairs	4	221,920	\$750,000	100%	0%	N/A	
		Kennedy Avenue Bridge Rehab	4	9,723	\$500,000	100%	0%	N/A	
		Western Hills Viaduct - FC Inspection	4	221,920	\$50,000	100%	0%	N/A	
		TOTAL			\$2,150,000				\$3,000,000
2014									
\$3,000,000	\$1,000,000	Bridge Inspection & Program Management	N/A		\$100,000	100%	0%	N/A	***************************************
\$3,000,000	Ψ1,000,000	TROD and Contract Maintenance Work	Various	Various	\$100,000	100%	0%	N/A	
		Western Hills Viaduct - Rehab/Replacement - Detail Design <sup>2</sup>	4	221,920	\$650,000	20%	80%	No	
		Western Hills Viaduct - R/W Acquisition <sup>2</sup>	4	221,920	\$800,000	20%	80%	Yes	
		TOTAL	+		\$1,650,000		1	105	\$2,350,000
2015							1		
\$2,350,000	\$1,000,000	Bridge Inspection & Program Management			\$100,000	100%	0%	N/A	
		TROD and Contract Maintenance Work	Various	Various	\$100,000	100%	0%	N/A	
		Western Hills Viaduct - Fracture Critical Inspection	4	221,920	\$50,000	100%	0%	N/A	
		North Bend Road Bridge over Kirby - Deck Overlay/Painting	5	6,776	\$500,000	50%	50%	No	
		Hopple Street Viaduct - Overlay and Expansion Joint Replacement	6	115,560	\$800,000	20%	80%	No	
		Western Hills Viaduct - Rehab/Replacement - Detail Design <sup>2</sup>	4	221,920	\$650,000	20%	80%	No	
		TOTAL	1		\$2,200,000				\$1,150,000

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#### continued

2016			l				l	[	11
\$1.150.000	\$1,000,000	Bridge Inspection & Program Management			\$100.000	100%	0%	N/A	
\$1,100,000	Ψ1,000,000	TROD and Contract Maintenance Work	Various	Various	\$100,000	100%	0%	N/A	
		Galbraith Road Bridge - Rehab	6	20,808	\$500,000	50%	50%	No	
		Marburg Avenue Bridge Replacement	4	6,156	\$400,000	20%	80%	Yes	
		TOTAL	[		\$1,100,000				\$1,050,000
2017									
\$1,050,000	\$1,000,000	Bridge Inspection & Program Management			\$100,000	100%	0%	N/A	
		TROD and Contract Maintenance Work	Various	Various	\$100,000	100%	0%	N/A	
		Underwater Inspections	Various	Various	\$50,000	100%	0%	N/A	
		East Fork Bridge over LDC - Replacement	6	1,512	\$300,000	20%	80%	No	
		Western Hills Viaduct - Rehab/Replacement <sup>2</sup>	4	221,920	\$20,000,000	20%	80%	No	
		TOTAL			\$550,000				\$1,500,000

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Western Hills Viaduct Reconstruction / Replacement Project <sup>1</sup> Additional leveraged funding will be pursued and will be used to supplement local funds as secured.

<sup>2</sup> Rehabilitation/replacement of the Western Hills Viaduct will be a major project and construction is expected to cost approximately \$200 million of which the total match is listed but not included in the summary. State and Federal funds will be sought, but a local match may be needed. Detail design is expected to cost approximately \$10 million. DOTE is pursuing acquiring matching funds but no such funds have yet been secured.





The projects are grouped by the year of expected bid. This plan is flexible and will be revised as necessary if future bridge inspections reveal unexpected changes in the condition of any bridge, if anticipated bridge funding amounts change, if unexpected leveraged funding sources become available or are withdrawn, if the timing of any bridge project requires adjustment to coordinate with other infrastructure improvement or development projects, or if City Council or the City Administration redirect priorities. The estimated project costs are preliminary and are only intended to establish basic funding needs and are not considered engineer's estimates. Bridge conditions will be continually monitored during the six-year period and the plan will be adjusted as needed to best maintain the bridge infrastructure.

The funds programmed for the County Bridge Maintenance Contracts may also be used, wholly or in part, to support other projects listed in the six-year plan whose expenses exceed the preliminary estimates listed in the six-year plan.